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DENEFLÉ, PATRICE
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<120> NUCLEIC ACIDS OF THE HUMAN ABCA12 GENE, VECTORS
CONTAINING SUCH NUCLEIC ACIDS AND USES THEREOF

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Lys	Cys	Lys	Asp	Thr	Pro	Tyr	Gly	Pro	Gln	Asp	Leu	Leu	Arg	Arg	Lys
				85					90					95	
Gly	Ile	Asp	Asp	Ala	Leu	Phe	Lys	Asp	Ser	Glu	Ile	Leu	Arg	Lys	Ser
			100					105					110		
Ser	Asn	Leu	Asp	Lys	Asp	Ser	Ser	Leu	Ser	Phe	Gln	Ser	Thr	Gln	Val
		115					120					125			
Pro	Glu	Arg	Arg	His	Ala	Ser	Leu	Ala	Thr	Val	Phe	Pro	Ser	Pro	Ser
	130					135					140				
Ser	Asp	Leu	Glu	Ile	Pro	Gly	Thr	Tyr	Thr	Phe	Asn	Gly	Ser	Gln	Val
145					150					155					160
Leu	Ala	Arg	Ile	Leu	Gly	Leu	Glu	Lys	Leu	Leu	Lys	Gln	Asn	Ser	Thr
				165					170						175
Ser	Glu	Asp	Ile	Arg	Arg	Glu	Leu	Cys	Asp	Ser	Tyr	Ser	Gly	Tyr	Ile
			180					185					190		
Val	Asp	Asp	Ala	Phe	Ser	Trp	Thr	Phe	Leu	Gly	Arg	Asn	Val	Phe	Asn
		195					200					205			
Lys	Phe	Cys	Leu	Ser	Asn	Met	Thr	Leu	Leu	Glu	Ser	Ser	Leu	Gln	Glu
	210					215					220				
Leu	Asn	Lys	Gln	Phe	Ser	Gln	Leu	Ser	Ser	Asp	Pro	Asn	Asn	Gln	Lys
225					230					235					240
Ile	Val	Phe	Gln	Glu	Ile	Val	Arg	Met	Leu	Ser	Phe	Phe	Ser	Gln	Val
				245					250					255	
Gln	Glu	Gln	Lys	Ala	Val	Trp	Gln	Leu	Leu	Ser	Ser	Phe	Pro	Asn	Val
			260					265					270		

Phe	Gln	Asn	Asp	Thr	Ser	Leu	Ser	Asn	Leu	Phe	Asp	Val	Leu	Arg	Lys	275	280	285
Ala	Asn	Ser	Val	Leu	Leu	Val	Val	Gln	Lys	Val	Tyr	Pro	Arg	Phe	Ala	290	295	300
Thr	Asn	Glu	Gly	Phe	Arg	Thr	Leu	Gln	Lys	Ser	Val	Lys	His	Leu	Leu	305	310	315
Tyr	Thr	Leu	Asp	Ser	Pro	Ala	Gln	Gly	Asp	Ser	Asp	Asn	Ile	Thr	His	325	330	335
Val	Trp	Asn	Glu	Asp	Asp	Gly	Gln	Thr	Leu	Ser	Pro	Ser	Ser	Leu	Ala	340	345	350
Ala	Gln	Leu	Leu	Ile	Leu	Glu	Asn	Phe	Glu	Asp	Ala	Leu	Leu	Asn	Ile	355	360	365
Ser	Ala	Asn	Ser	Pro	Tyr	Ile	Pro	Tyr	Leu	Ala	Cys	Val	Arg	Asn	Val	370	375	380
Thr	Asp	Ser	Leu	Ala	Arg	Gly	Ser	Pro	Glu	Asn	Leu	Arg	Leu	Leu	Gln	385	390	395
Ser	Thr	Ile	Arg	Phe	Lys	Lys	Ser	Phe	Leu	Arg	Asn	Gly	Ser	Tyr	Glu	405	410	415
Asp	Tyr	Phe	Pro	Pro	Val	Pro	Glu	Val	Leu	Lys	Ser	Lys	Leu	Ser	Gln	420	425	430
Leu	Arg	Asn	Leu	Thr	Glu	Leu	Leu	Cys	Glu	Ser	Glu	Thr	Phe	Ser	Leu	435	440	445
Ile	Glu	Lys	Ser	Cys	Gln	Leu	Ser	Asp	Met	Ser	Phe	Gly	Ser	Leu	Cys	450	455	460
Glu	Glu	Ser	Glu	Phe	Asp	Leu	Gln	Leu	Leu	Glu	Ala	Ala	Glu	Leu	Gly	465	470	475
Thr	Glu	Ile	Ala	Ala	Ser	Leu	Leu	Tyr	His	Asp	Asn	Val	Ile	Ser	Lys	485	490	495
Lys	Val	Arg	Asp	Leu	Leu	Thr	Gly	Asp	Pro	Ser	Lys	Ile	Asn	Leu	Asn	500	505	510
Met	Asp	Gln	Phe	Leu	Glu	Gln	Ala	Leu	Gln	Met	Asn	Tyr	Leu	Glu	Asn	515	520	525
Ile	Thr	Gln	Leu	Ile	Pro	Ile	Ile	Glu	Ala	Met	Leu	His	Val	Asn	Asn	530	535	540
Ser	Ala	Asp	Ala	Ser	Glu	Lys	Pro	Gly	Gln	Leu	Leu	Glu	Met	Phe	Lys	545	550	555
Asn	Val	Glu	Glu	Leu	Lys	Glu	Asp	Leu	Arg	Arg	Thr	Thr	Gly	Met	Ser	565	570	575

Asn	Arg	Thr	Ile	Asp	Lys	Leu	Leu	Ala	Ile	Pro	Ile	Pro	Asp	Asn	Arg		
			580					585					590				
Ala	Glu	Ile	Ile	Ser	Gln	Val	Phe	Trp	Leu	His	Ser	Cys	Asp	Thr	Asn		
		595					600					605					
Ile	Thr	Thr	Pro	Lys	Leu	Glu	Asp	Ala	Met	Lys	Glu	Phe	Cys	Asn	Leu		
	610					615					620						
Ser	Leu	Ser	Glu	Arg	Ser	Arg	Gln	Ser	Tyr	Leu	Ile	Gly	Leu	Thr	Leu		
625					630					635					640		
Leu	His	Tyr	Leu	Asn	Ile	Tyr	Asn	Phe	Thr	Asp	Lys	Val	Phe	Phe	Pro		
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Arg	Lys	Asp	Gln	Lys	Pro	Val	Glu	Lys	Met	Met	Glu	Leu	Phe	Ile	Arg		
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Leu	Lys	Glu	Ile	Leu	Asn	Gln	Met	Ala	Ser	Gly	Thr	His	Pro	Leu	Leu		
		675					680					685					
Asp	Lys	Met	Arg	Ser	Leu	Lys	Gln	Met	His	Leu	Pro	Arg	Ser	Val	Pro		
	690					695					700						
Leu	Thr	Gln	Ala	Met	Tyr	Arg	Ser	Asn	Arg	Met	Asn	Thr	Pro	Gln	Gly		
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Ser	Phe	Ser	Thr	Ile	Ser	Gln	Ala	Leu	Cys	Ser	Gln	Gly	Ile	Thr	Thr		
				725					730					735			
Glu	Tyr	Leu	Thr	Ala	Met	Leu	Pro	Ser	Ser	Gln	Arg	Pro	Lys	Gly	Asn		
			740					745					750				
His	Thr	Lys	Asp	Phe	Leu	Thr	Tyr	Lys	Leu	Thr	Lys	Glu	Gln	Ile	Ala		
		755					760					765					
Ser	Lys	Tyr	Gly	Ile	Pro	Ile	Asn	Thr	Thr	Pro	Phe	Cys	Phe	Ser	Leu		
	770					775					780						
Tyr	Lys	Asp	Ile	Ile	Asn	Met	Pro	Ala	Gly	Pro	Val	Ile	Trp	Ala	Phe		
785					790					795					800		
Leu	Lys	Pro	Met	Leu	Leu	Gly	Arg	Ile	Leu	His	Ala	Pro	Tyr	Asn	Pro		
				805					810					815			
Val	Thr	Lys	Ala	Ile	Met	Glu	Lys	Ser	Asn	Val	Thr	Leu	Arg	Gln	Leu		
			820					825					830				
Ala	Glu	Leu	Arg	Glu	Lys	Ser	Gln	Glu	Trp	Met	Asp	Lys	Ser	Pro	Leu		
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Phe	Met	Asn	Ser	Phe	His	Leu	Leu	Asn	Gln	Ala	Ile	Pro	Met	Leu	Gln		
	850					855					860						
Asn	Thr	Leu	Arg	Asn	Pro	Phe	Val	Gln	Val	Phe	Val	Lys	Phe	Ser	Val		
865					870					875					880		

Gly	Leu	Asp	Ala	Val	Glu	Leu	Leu	Lys	Gln	Ile	Asp	Glu	Leu	Asp	Ile
				885					890					895	
				900				905						910	
Thr	Leu	Ser	Ser	Leu	Thr	Val	Asn	Ile	Ser	Ser	Cys	Val	Leu	Tyr	Asp
		915					920					925			
Arg	Ile	Gln	Ala	Ala	Lys	Thr	Ile	Asp	Glu	Met	Glu	Arg	Glu	Ala	Lys
	930					935					940				
Arg	Leu	Tyr	Lys	Ser	Asn	Glu	Leu	Phe	Gly	Ser	Val	Ile	Phe	Lys	Leu
945					950					955					960
Pro	Ser	Asn	Arg	Ser	Trp	His	Arg	Gly	Tyr	Asp	Ser	Gly	Asn	Val	Phe
				965					970					975	
Leu	Pro	Pro	Val	Ile	Lys	Tyr	Thr	Ile	Arg	Met	Ser	Leu	Lys	Thr	Ala
			980					985					990		
Gln	Thr	Thr	Arg	Ser	Leu	Arg	Thr	Lys	Ile	Trp	Ala	Pro	Gly	Pro	His
		995					1000					1005			
Asn	Ser	Pro	Ser	His	Asn	Gln	Ile	Tyr	Gly	Arg	Ala	Phe	Ile	Tyr	Leu
	1010					1015					1020				
Gln	Asp	Ser	Ile	Glu	Arg	Ala	Ile	Ile	Glu	Leu	Gln	Thr	Gly	Arg	Asn
1025					1030					1035					1040
Ser	Gln	Glu	Ile	Ala	Val	Gln	Val	Gln	Ala	Ile	Pro	Tyr	Pro	Cys	Phe
				1045					1050					1055	
Met	Lys	Asp	Asn	Phe	Leu	Thr	Ser	Val	Ser	Tyr	Ser	Leu	Pro	Ile	Val
			1060					1065					1070		
Leu	Met	Val	Ala	Trp	Val	Val	Phe	Ile	Ala	Ala	Phe	Val	Lys	Lys	Leu
	1075						1080					1085			
Val	Tyr	Glu	Lys	Asp	Leu	Arg	Leu	His	Glu	Tyr	Met	Lys	Met	Met	Gly
	1090					1095					1100				
Val	Asn	Ser	Cys	Ser	His	Phe	Phe	Ala	Trp	Leu	Ile	Glu	Ser	Val	Gly
1105					1110					1115					1120
Phe	Leu	Leu	Val	Thr	Ile	Val	Ile	Leu	Ile	Ile	Ile	Leu	Lys	Phe	Gly
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Asn	Ile	Leu	Pro	Lys	Thr	Asn	Gly	Phe	Ile	Leu	Phe	Leu	Tyr	Phe	Ser
			1140					1145					1150		
Asp	Tyr	Ser	Phe	Ser	Val	Ile	Ala	Met	Ser	Tyr	Leu	Ile	Ser	Val	Phe
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Phe	Asn	Asn	Thr	Asn	Ile	Ala	Ala	Leu	Ile	Gly	Ser	Leu	Ile	Tyr	Ile
	1170					1175						1180			

Ile Ala Phe Phe Pro Phe Ile Val Leu Val Thr Val Glu Asn Glu Leu
 1185 1190 1195 1200
 Ser Tyr Val Leu Lys Val Phe Met Ser Leu Leu Ser Pro Thr Ala Phe
 1205 1210 1215
 Ser Tyr Ala Ser Gln Tyr Ile Ala Arg Tyr Glu Glu Gln Gly Ile Gly
 1220 1225 1230
 Leu Gln Trp Glu Asn Met Tyr Thr Ser Pro Val Gln Asp Asp Thr Thr
 1235 1240 1245
 Ser Phe Gly Trp Leu Cys Cys Leu Ile Leu Ala Asp Ser Phe Ile Tyr
 1250 1255 1260
 Phe Leu Ile Ala Trp Tyr Val Arg Asn Val Phe Pro Gly Thr Tyr Gly
 1265 1270 1275 1280
 Met Ala Ala Pro Trp Tyr Phe Pro Ile Leu Pro Ser Tyr Trp Lys Glu
 1285 1290 1295
 Arg Phe Gly Cys Ala Glu Val Lys Pro Glu Lys Ser Asn Gly Leu Met
 1300 1305 1310
 Phe Thr Asn Ile Met Met Gln Asn Thr Asn Pro Ser Ala Ser Pro Glu
 1315 1320 1325
 Tyr Met Phe Ser Ser Asn Ile Glu Pro Glu Pro Lys Asp Leu Thr Val
 1330 1335 1340
 Gly Val Ala Leu His Gly Val Thr Lys Ile Tyr Gly Ser Lys Val Ala
 1345 1350 1355 1360
 Val Asp Asn Leu Asn Leu Asn Phe Tyr Glu Gly His Ile Thr Ser Leu
 1365 1370 1375
 Leu Gly Pro Asn Gly Ala Gly Lys Thr Thr Thr Ile Ser Met Leu Thr
 1380 1385 1390
 Gly Leu Phe Gly Ala Ser Ala Gly Thr Ile Phe Val Tyr Gly Lys Asp
 1395 1400 1405
 Ile Lys Thr Asp Leu His Thr Val Arg Lys Asn Met Gly Val Cys Met
 1410 1415 1420
 Gln His Asp Val Leu Phe Ser Tyr Leu Thr Thr Lys Glu His Leu Leu
 1425 1430 1435 1440
 Leu Tyr Gly Ser Ile Lys Val Pro His Trp Thr Lys Lys Gln Leu His
 1445 1450 1455
 Glu Glu Val Lys Arg Thr Leu Lys Asp Thr Gly Leu Tyr Ser His Arg
 1460 1465 1470
 His Lys Arg Val Gly Thr Leu Ser Gly Gly Met Lys Arg Lys Leu Ser
 1475 1480 1485

Ile Ser Ile Ala Leu Ile Gly Gly Ser Arg Val Val Ile Leu Asp Glu		
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Pro Ser Thr Gly Val Asp Pro Cys Ser Arg Arg Ser Ile Trp Asp Val		
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Ile Ser Lys Asn Lys Thr Ala Arg Thr Ile Ile Leu Ser Thr His His		
	1525	1530 1535
Leu Asp Glu Ala Glu Val Leu Ser Asp Arg Ile Ala Phe Leu Glu Gln		
	1540	1545 1550
Gly Gly Leu Arg Cys Cys Gly Ser Pro Phe Tyr Leu Lys Glu Ala Phe		
	1555	1560 1565
Gly Asp Gly Tyr His Leu Thr Leu Thr Lys Lys Lys Ser Pro Asn Leu		
	1570	1575 1580
Asn Ala Asn Ala Val Cys Asp Thr Met Ala Val Thr Ala Met Ile Gln		
1585	1590	1595 1600
Ser His Leu Pro Glu Ala Tyr Leu Lys Glu Asp Ile Gly Gly Glu Leu		
	1605	1610 1615
Val Tyr Val Leu Pro Pro Phe Ser Thr Lys Val Ser Gly Ala Tyr Leu		
	1620	1625 1630
Ser Leu Leu Arg Ala Leu Asp Asn Gly Met Gly Asp Leu Asn Ile Gly		
	1635	1640 1645
Cys Tyr Gly Ile Ser Asp Thr Thr Val Glu Glu Val Phe Leu Asn Leu		
	1650	1655 1660
Thr Lys Glu Ser Gln Lys Asn Ser Ala Met Ser Leu Glu His Leu Thr		
1665	1670	1675 1680
Gln Lys Lys Ile Gly Asn Ser Asn Ala Asn Gly Ile Ser Thr Pro Asp		
	1685	1690 1695
Asp Leu Ser Val Ser Ser Ser Asn Phe Thr Asp Arg Asp Asp Lys Ile		
	1700	1705 1710
Leu Thr Arg Gly Glu Arg Leu Asp Gly Phe Gly Leu Leu Leu Lys Lys		
	1715	1720 1725
Ile Met Ala Ile Leu Ile Lys Arg Phe His His Xaa Arg Arg Asn Trp		
	1730	1735 1740
Lys Gly Leu Ile Ala Gln Val Ile Leu Pro Ile Val Phe Val Thr Thr		
1745	1750	1755 1760
Ala Met Gly Leu Gly Thr Leu Arg Asn Ser Ser Asn Ser Tyr Pro Glu		
	1765	1770 1775
Ile Gln Ile Ser Pro Ser Leu Tyr Gly Thr Ser Glu Gln Thr Ala Phe		
	1780	1785 1790

Tyr Ala Asn Tyr His Pro Ser Thr Glu Ala Leu Val Ser Ala Met Trp
 1795 1800 1805
 Asp Phe Pro Gly Ile Asp Asn Met Cys Leu Asn Thr Ser Asp Leu Gln
 1810 1815 1820
 Cys Leu Asn Lys Asp Ser Leu Glu Lys Trp Asn Thr Ser Gly Glu Pro
 1825 1830 1835 1840
 Ile Thr Asn Phe Gly Val Cys Ser Cys Ser Glu Asn Val Gln Glu Cys
 1845 1850 1855
 Pro Lys Phe Asn Tyr Ser Pro Pro His Arg Arg Thr Tyr Ser Ser Gln
 1860 1865 1870
 Val Ile Tyr Asn Leu Thr Gly Gln Arg Val Glu Asn Tyr Leu Ile Ser
 1875 1880 1885
 Thr Ala Asn Glu Phe Val Gln Lys Arg Tyr Gly Gly Trp Ser Phe Gly
 1890 1895 1900
 Leu Pro Leu Thr Lys Asp Leu Arg Phe Asp Ile Thr Gly Val Pro Ala
 1905 1910 1915 1920
 Asn Arg Thr Leu Ala Lys Val Trp Tyr Asp Pro Glu Gly Tyr His Ser
 1925 1930 1935
 Leu Pro Ala Tyr Leu Asn Ser Leu Asn Asn Phe Leu Leu Arg Val Asn
 1940 1945 1950
 Met Ser Lys Tyr Asp Ala Ala Arg His Gly Ile Ile Met Tyr Ser His
 1955 1960 1965
 Pro Tyr Pro Gly Val Gln Asp Gln Glu Gln Ala Thr Ile Ser Ser Leu
 1970 1975 1980
 Ile Asp Ile Leu Val Ala Leu Ser Ile Leu Met Gly Tyr Ser Val Thr
 1985 1990 1995 2000
 Thr Ala Ser Phe Val Thr Tyr Val Val Arg Glu His Gln Thr Lys Ala
 2005 2010 2015
 Lys Gln Leu Gln His Ile Ser Gly Ile Gly Val Thr Cys Tyr Trp Val
 2020 2025 2030
 Thr Asn Phe Ile Tyr Asp Met Val Phe Tyr Leu Val Pro Val Ala Phe
 2035 2040 2045
 Ser Ile Gly Ile Ile Ala Ile Phe Lys Leu Pro Ala Phe Tyr Ser Glu
 2050 2055 2060
 Asn Asn Leu Gly Ala Val Ser Leu Leu Leu Leu Leu Phe Gly His Ala
 2065 2070 2075 2080
 Thr Phe Ser Trp Met Tyr Leu Leu Ala Gly Leu Phe His Glu Thr Gly
 2085 2090 2095

Met Ala Phe Ile Thr Tyr Val Cys Val Asn Leu Phe Phe Gly Ile Asn
 2100 2105 2110
 Ser Ile Val Ser Leu Ser Val Val Tyr Phe Leu Ser Lys Glu Lys Pro
 2115 2120 2125
 Asn Asp Pro Thr Leu Glu Leu Ile Ser Glu Thr Leu Lys Arg Ile Phe
 2130 2135 2140
 Leu Ile Phe Pro Gln Phe Cys Phe Gly Tyr Gly Leu Ile Glu Leu Ser
 2145 2150 2155 2160
 Gln Gln Gln Ser Val Leu Asp Phe Leu Lys Ala Tyr Gly Val Glu Tyr
 2165 2170 2175
 Pro Asn Glu Thr Phe Glu Met Asn Lys Leu Gly Ala Met Phe Val Ala
 2180 2185 2190
 Leu Val Ser Gln Gly Thr Met Phe Phe Ser Leu Arg Leu Leu Ile Asn
 2195 2200 2205
 Glu Ser Leu Ile Lys Lys Leu Arg Leu Phe Phe Arg Lys Phe Asn Ser
 2210 2215 2220
 Ser His Val Arg Glu Thr Ile Asp Glu Asp Glu Asp Val Arg Ala Glu
 2225 2230 2235 2240
 Arg Leu Arg Val Glu Ser Gly Ala Ala Glu Phe Asp Leu Val Gln Leu
 2245 2250 2255
 Tyr Cys Leu Thr Lys Thr Tyr Gln Leu Ile His Lys Lys Ile Ile Ala
 2260 2265 2270
 Val Asn Asn Ile Ser Ile Gly Ile Pro Ala Gly Glu Cys Phe Gly Leu
 2275 2280 2285
 Leu Gly Val Asn Gly Ala Gly Lys Thr Thr Ile Phe Lys Met Leu Thr
 2290 2295 2300
 Gly Asp Ile Ile Pro Ser Ser Gly Asn Ile Leu Ile Arg Asn Lys Thr
 2305 2310 2315 2320
 Gly Ser Leu Gly His Val Asp Ser His Ser Ser Leu Val Gly Tyr Cys
 2325 2330 2335
 Pro Gln Glu Asp Ala Leu Asp Asp Leu Val Thr Val Glu Glu His Leu
 2340 2345 2350
 Tyr Phe Tyr Ala Arg Val His Gly Ile Pro Glu Lys Asp Ile Lys Glu
 2355 2360 2365
 Thr Val His Lys Leu Leu Arg Arg Leu His Leu Met Pro Phe Lys Asp
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Leu Gly Val Lys Arg Gln Pro Leu Trp Thr Leu Val Leu Ile Leu Trp
      20                      25                      30

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Pro	Val	Ile	Ile	Phe	Ile	Ile	Leu	Ala	Ile	Thr	Arg	Thr	Lys	Phe	Pro	35	40	45
Pro	Thr	Ala	Lys	Pro	Thr	Cys	Tyr	Leu	Ala	Pro	Arg	Asn	Leu	Pro	Ser	50	55	60
Thr	Gly	Phe	Phe	Pro	Phe	Leu	Gln	Thr	Leu	Leu	Cys	Asp	Thr	Asp	Ser	65	70	75
Lys	Cys	Lys	Asp	Thr	Pro	Tyr	Gly	Pro	Gln	Asp	Leu	Leu	Arg	Arg	Lys	85	90	95
Gly	Ile	Asp	Asp	Ala	Leu	Phe	Lys	Asp	Ser	Glu	Ile	Leu	Arg	Lys	Ser	100	105	110
Ser	Asn	Leu	Asp	Lys	Asp	Ser	Ser	Leu	Ser	Phe	Gln	Ser	Thr	Gln	Val	115	120	125
Pro	Glu	Arg	Arg	His	Ala	Ser	Leu	Ala	Thr	Val	Phe	Pro	Ser	Pro	Ser	130	135	140
Ser	Asp	Leu	Glu	Ile	Pro	Gly	Thr	Tyr	Thr	Phe	Asn	Gly	Ser	Gln	Val	145	150	155
Leu	Ala	Arg	Ile	Leu	Gly	Leu	Glu	Lys	Leu	Leu	Lys	Gln	Asn	Ser	Thr	165	170	175
Ser	Glu	Asp	Ile	Arg	Arg	Glu	Leu	Cys	Asp	Ser	Tyr	Ser	Gly	Tyr	Ile	180	185	190
Val	Asp	Asp	Ala	Phe	Ser	Trp	Thr	Phe	Leu	Gly	Arg	Asn	Val	Phe	Asn	195	200	205
Lys	Phe	Cys	Leu	Ser	Asn	Met	Thr	Leu	Leu	Glu	Ser	Ser	Leu	Gln	Glu	210	215	220
Leu	Asn	Lys	Gln	Phe	Ser	Gln	Leu	Ser	Ser	Asp	Pro	Asn	Asn	Gln	Lys	225	230	235
Ile	Val	Phe	Gln	Glu	Ile	Val	Arg	Met	Leu	Ser	Phe	Phe	Ser	Gln	Val	245	250	255
Gln	Glu	Gln	Lys	Ala	Val	Trp	Gln	Leu	Leu	Ser	Ser	Phe	Pro	Asn	Val	260	265	270
Phe	Gln	Asn	Asp	Thr	Ser	Leu	Ser	Asn	Leu	Phe	Asp	Val	Leu	Arg	Lys	275	280	285
Ala	Asn	Ser	Val	Leu	Leu	Val	Val	Gln	Lys	Val	Tyr	Pro	Arg	Phe	Ala	290	295	300
Thr	Asn	Glu	Gly	Phe	Arg	Thr	Leu	Gln	Lys	Ser	Val	Lys	His	Leu	Leu	305	310	315
Tyr	Thr	Leu	Asp	Ser	Pro	Ala	Gln	Gly	Asp	Ser	Asp	Asn	Ile	Thr	His	325	330	335

Val	Trp	Asn	Glu	Asp	Asp	Gly	Gln	Thr	Leu	Ser	Pro	Ser	Ser	Leu	Ala	
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Ala	Gln	Leu	Leu	Ile	Leu	Glu	Asn	Phe	Glu	Asp	Ala	Leu	Leu	Asn	Ile	
		355					360					365				
Ser	Ala	Asn	Ser	Pro	Tyr	Ile	Pro	Tyr	Leu	Ala	Cys	Val	Arg	Asn	Val	
	370					375					380					
Thr	Asp	Ser	Leu	Ala	Arg	Gly	Ser	Pro	Glu	Asn	Leu	Arg	Leu	Leu	Gln	
385					390					395					400	
Ser	Thr	Ile	Arg	Phe	Lys	Lys	Ser	Phe	Leu	Arg	Asn	Gly	Ser	Tyr	Glu	
			405						410					415		
Asp	Tyr	Phe	Pro	Pro	Val	Pro	Glu	Val	Leu	Lys	Ser	Lys	Leu	Ser	Gln	
		420						425					430			
Leu	Arg	Asn	Leu	Thr	Glu	Leu	Leu	Cys	Glu	Ser	Glu	Thr	Phe	Ser	Leu	
		435					440					445				
Ile	Glu	Lys	Ser	Cys	Gln	Leu	Ser	Asp	Met	Ser	Phe	Gly	Ser	Leu	Cys	
	450					455					460					
Glu	Glu	Ser	Glu	Phe	Asp	Leu	Gln	Leu	Leu	Glu	Ala	Ala	Glu	Leu	Gly	
465					470					475					480	
Thr	Glu	Ile	Ala	Ala	Ser	Leu	Leu	Tyr	His	Asp	Asn	Val	Ile	Ser	Lys	
			485					490						495		
Lys	Val	Arg	Asp	Leu	Leu	Thr	Gly	Asp	Pro	Ser	Lys	Ile	Asn	Leu	Asn	
			500					505					510			
Met	Asp	Gln	Phe	Leu	Glu	Gln	Ala	Leu	Gln	Met	Asn	Tyr	Leu	Glu	Asn	
		515					520					525				
Ile	Thr	Gln	Leu	Ile	Pro	Ile	Ile	Glu	Ala	Met	Leu	His	Val	Asn	Asn	
	530					535					540					
Ser	Ala	Asp	Ala	Ser	Glu	Lys	Pro	Gly	Gln	Leu	Leu	Glu	Met	Phe	Lys	
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Asn	Arg	Thr	Ile	Asp	Lys	Leu	Leu	Ala	Ile	Pro	Ile	Pro	Asp	Asn	Arg	
			580					585					590			
Ala	Glu	Ile	Ile	Ser	Gln	Val	Phe	Trp	Leu	His	Ser	Cys	Asp	Thr	Asn	
		595					600					605				
Ile	Thr	Thr	Pro	Lys	Leu	Glu	Asp	Ala	Met	Lys	Glu	Phe	Cys	Asn	Leu	
	610					615					620					
Ser	Leu	Ser	Glu	Arg	Ser	Arg	Gln	Ser	Tyr	Leu	Ile	Gly	Leu	Thr	Leu	
625					630					635					640	

Leu	His	Tyr	Leu	Asn	Ile	Tyr	Asn	Phe	Thr	Asp	Lys	Val	Phe	Phe	Pro	645	650	655	
Arg	Lys	Asp	Gln	Lys	Pro	Val	Glu	Lys	Met	Met	Glu	Leu	Phe	Ile	Arg	660	665	670	
Leu	Lys	Glu	Ile	Leu	Asn	Gln	Met	Ala	Ser	Gly	Thr	His	Pro	Leu	Leu	675	680	685	
Asp	Lys	Met	Arg	Ser	Leu	Lys	Gln	Met	His	Leu	Pro	Arg	Ser	Val	Pro	690	695	700	
Leu	Thr	Gln	Ala	Met	Tyr	Arg	Ser	Asn	Arg	Met	Asn	Thr	Pro	Gln	Gly	705	710	715	720
Ser	Phe	Ser	Thr	Ile	Ser	Gln	Ala	Leu	Cys	Ser	Gln	Gly	Ile	Thr	Thr	725	730	735	
Glu	Tyr	Leu	Thr	Ala	Met	Leu	Pro	Ser	Ser	Gln	Arg	Pro	Lys	Gly	Asn	740	745	750	
His	Thr	Lys	Asp	Phe	Leu	Thr	Tyr	Lys	Leu	Thr	Lys	Glu	Gln	Ile	Ala	755	760	765	
Ser	Lys	Tyr	Gly	Ile	Pro	Ile	Asn	Thr	Thr	Pro	Phe	Cys	Phe	Ser	Leu	770	775	780	
Tyr	Lys	Asp	Ile	Ile	Asn	Met	Pro	Ala	Gly	Pro	Val	Ile	Trp	Ala	Phe	785	790	795	800
Leu	Lys	Pro	Met	Leu	Leu	Gly	Arg	Ile	Leu	His	Ala	Pro	Tyr	Asn	Pro	805	810	815	
Val	Thr	Lys	Ala	Ile	Met	Glu	Lys	Ser	Asn	Val	Thr	Leu	Arg	Gln	Leu	820	825	830	
Ala	Glu	Leu	Arg	Glu	Lys	Ser	Gln	Glu	Trp	Met	Asp	Lys	Ser	Pro	Leu	835	840	845	
Phe	Met	Asn	Ser	Phe	His	Leu	Leu	Asn	Gln	Ala	Ile	Pro	Met	Leu	Gln	850	855	860	
Asn	Thr	Leu	Arg	Asn	Pro	Phe	Val	Gln	Val	Phe	Val	Lys	Phe	Ser	Val	865	870	875	880
Gly	Leu	Asp	Ala	Val	Glu	Leu	Leu	Lys	Gln	Ile	Asp	Glu	Leu	Asp	Ile	885	890	895	
Leu	Arg	Leu	Lys	Leu	Glu	Asn	Asn	Ile	Asp	Ile	Ile	Asp	Gln	Leu	Asn	900	905	910	
Thr	Leu	Ser	Ser	Leu	Thr	Val	Asn	Ile	Ser	Ser	Cys	Val	Leu	Tyr	Asp	915	920	925	
Arg	Ile	Gln	Ala	Ala	Lys	Thr	Ile	Asp	Glu	Met	Glu	Arg	Glu	Ala	Lys	930	935	940	

Arg	Leu	Tyr	Lys	Ser	Asn	Glu	Leu	Phe	Gly	Ser	Val	Ile	Phe	Lys	Leu	945	950	955	960
Pro	Ser	Asn	Arg	Ser	Trp	His	Arg	Gly	Tyr	Asp	Ser	Gly	Asn	Val	Phe	965	970	975	
Leu	Pro	Pro	Val	Ile	Lys	Tyr	Thr	Ile	Arg	Met	Ser	Leu	Lys	Thr	Ala	980	985	990	
Gln	Thr	Thr	Arg	Ser	Leu	Arg	Thr	Lys	Ile	Trp	Ala	Pro	Gly	Pro	His	995	1000	1005	
Asn	Ser	Pro	Ser	His	Asn	Gln	Ile	Tyr	Gly	Arg	Ala	Phe	Ile	Tyr	Leu	1010	1015	1020	
Gln	Asp	Ser	Ile	Glu	Arg	Ala	Ile	Ile	Glu	Leu	Gln	Thr	Gly	Arg	Asn	1025	1030	1035	1040
Ser	Gln	Glu	Ile	Ala	Val	Gln	Val	Gln	Ala	Ile	Pro	Tyr	Pro	Cys	Phe	1045	1050	1055	
Met	Lys	Asp	Asn	Phe	Leu	Thr	Ser	Val	Ser	Tyr	Ser	Leu	Pro	Ile	Val	1060	1065	1070	
Leu	Met	Val	Ala	Trp	Val	Val	Phe	Ile	Ala	Ala	Phe	Val	Lys	Lys	Leu	1075	1080	1085	
Val	Tyr	Glu	Lys	Asp	Leu	Arg	Leu	His	Glu	Tyr	Met	Lys	Met	Met	Gly	1090	1095	1100	
Val	Asn	Ser	Cys	Ser	His	Phe	Phe	Ala	Trp	Leu	Ile	Glu	Ser	Val	Gly	1105	1110	1115	1120
Phe	Leu	Leu	Val	Thr	Ile	Val	Ile	Leu	Ile	Ile	Ile	Leu	Lys	Phe	Gly	1125	1130	1135	
Asn	Ile	Leu	Pro	Lys	Thr	Asn	Gly	Phe	Ile	Leu	Phe	Leu	Tyr	Phe	Ser	1140	1145	1150	
Asp	Tyr	Ser	Phe	Ser	Val	Ile	Ala	Met	Ser	Tyr	Leu	Ile	Ser	Val	Phe	1155	1160	1165	
Phe	Asn	Asn	Thr	Asn	Ile	Ala	Ala	Leu	Ile	Gly	Ser	Leu	Ile	Tyr	Ile	1170	1175	1180	
Ile	Ala	Phe	Phe	Pro	Phe	Ile	Val	Leu	Val	Thr	Val	Glu	Asn	Glu	Leu	1185	1190	1195	1200
Ser	Tyr	Val	Leu	Lys	Val	Phe	Met	Ser	Leu	Leu	Ser	Pro	Thr	Ala	Phe	1205	1210	1215	
Ser	Tyr	Ala	Ser	Gln	Tyr	Ile	Ala	Arg	Tyr	Glu	Glu	Gln	Gly	Ile	Gly	1220	1225	1230	
Leu	Gln	Trp	Glu	Asn	Met	Tyr	Thr	Ser	Pro	Val	Gln	Asp	Asp	Thr	Thr	1235	1240	1245	

Ser Phe Gly Trp Leu Cys Cys Leu Ile Leu Ala Asp Ser Phe Ile Tyr
 1250 1255 1260
 Phe Leu Ile Ala Trp Tyr Val Arg Asn Val Phe Pro Gly Thr Tyr Gly
 1265 1270 1275 1280
 Met Ala Ala Pro Trp Tyr Phe Pro Ile Leu Pro Ser Tyr Trp Lys Glu
 1285 1290 1295
 Arg Phe Gly Cys Ala Glu Val Lys Pro Glu Lys Ser Asn Gly Leu Met
 1300 1305 1310
 Phe Thr Asn Ile Met Met Gln Asn Thr Asn Pro Ser Ala Ser Pro Glu
 1315 1320 1325
 Tyr Met Phe Ser Ser Asn Ile Glu Pro Glu Pro Lys Asp Leu Thr Val
 1330 1335 1340
 Gly Val Ala Leu His Gly Val Thr Lys Ile Tyr Gly Ser Lys Val Ala
 1345 1350 1355 1360
 Val Asp Asn Leu Asn Leu Asn Phe Tyr Glu Gly His Ile Thr Ser Leu
 1365 1370 1375
 Leu Gly Pro Asn Gly Ala Gly Lys Thr Thr Thr Ile Ser Met Leu Thr
 1380 1385 1390
 Gly Leu Phe Gly Ala Ser Ala Gly Thr Ile Phe Val Tyr Gly Lys Asp
 1395 1400 1405
 Ile Lys Thr Asp Leu His Thr Val Arg Lys Asn Met Gly Val Cys Met
 1410 1415 1420
 Gln His Asp Val Leu Phe Ser Tyr Leu Thr Thr Lys Glu His Leu Leu
 1425 1430 1435 1440
 Leu Tyr Gly Ser Ile Lys Val Pro His Trp Thr Lys Lys Gln Leu His
 1445 1450 1455
 Glu Glu Val Lys Arg Thr Leu Lys Asp Thr Gly Leu Tyr Ser His Arg
 1460 1465 1470
 His Lys Arg Val Gly Thr Leu Ser Gly Gly Met Lys Arg Lys Leu Ser
 1475 1480 1485
 Ile Ser Ile Ala Leu Ile Gly Gly Ser Arg Val Val Ile Leu Asp Glu
 1490 1495 1500
 Pro Ser Thr Gly Val Asp Pro Cys Ser Arg Arg Ser Ile Trp Asp Val
 1505 1510 1515 1520
 Ile Ser Lys Asn Lys Thr Ala Arg Thr Ile Ile Leu Ser Thr His His
 1525 1530 1535
 Leu Asp Glu Ala Glu Val Leu Ser Asp Arg Ile Ala Phe Leu Glu Gln
 1540 1545 1550

Gly Gly Leu Arg Cys Cys Gly Ser Pro Phe Tyr Leu Lys Glu Ala Phe
 1555 1560 1565
 Gly Asp Gly Tyr His Leu Thr Leu Thr Lys Lys Lys Val Phe Leu Asn
 1570 1575 1580
 Leu Thr Lys Glu Ser Gln Lys Asn Ser Ala Met Ser Leu Glu His Leu
 1585 1590 1595 1600
 Thr Gln Lys Lys Ile Gly Asn Ser Asn Ala Asn Gly Ile Ser Thr Pro
 1605 1610 1615
 Asp Asp Leu Ser Val Ser Ser Ser Asn Phe Thr Asp Arg Asp Asp Lys
 1620 1625 1630
 Ile Leu Thr Arg Gly Glu Arg Leu Asp Gly Phe Gly Leu Leu Leu Lys
 1635 1640 1645
 Lys Ile Met Ala Ile Leu Ile Lys Arg Phe His His Ala Arg Arg Asn
 1650 1655 1660
 Trp Lys Gly Leu Ile Ala Gln Val Ile Leu Pro Ile Val Phe Val Thr
 1665 1670 1675 1680
 Thr Ala Met Gly Leu Gly Thr Leu Arg Asn Ser Ser Asn Ser Tyr Pro
 1685 1690 1695
 Glu Ile Gln Ile Ser Pro Ser Leu Tyr Gly Thr Ser Xaa Gln Thr Ala
 1700 1705 1710
 Phe Tyr Ala Asn Tyr His Pro Ser Thr Glu Ala Leu Val Ser Ala Met
 1715 1720 1725
 Trp Asp Phe Pro Gly Ile Asp Asn Met Cys Leu Asn Thr Ser Asp Leu
 1730 1735 1740
 Gln Cys Leu Asn Lys Asp Ser Leu Glu Lys Trp Asn Thr Ser Gly Glu
 1745 1750 1755 1760
 Pro Ile Thr Asn Phe Gly Val Cys Ser Cys Ser Glu Asn Val Gln Glu
 1765 1770 1775
 Cys Pro Lys Phe Asn Tyr Ser Pro Pro His Arg Arg Thr Tyr Ser Ser
 1780 1785 1790
 Gln Val Ile Tyr Asn Leu Thr Gly Gln Arg Val Glu Asn Tyr Leu Ile
 1795 1800 1805
 Ser Thr Ala Asn Glu Phe Val Gln Lys Arg Tyr Gly Gly Trp Ser Phe
 1810 1815 1820
 Gly Leu Pro Leu Thr Lys Asp Leu Arg Phe Asp Ile Thr Gly Val Pro
 1825 1830 1835 1840
 Ala Asn Arg Thr Leu Ala Lys Val Trp Tyr Asp Pro Glu Gly Tyr His
 1845 1850 1855

Ser Leu Pro Ala Tyr Leu Asn Ser Leu Asn Asn Phe Leu Leu Arg Val
 1860 1865 1870
 Asn Met Ser Lys Tyr Asp Ala Ala Arg His Gly Ile Ile Met Tyr Ser
 1875 1880 1885
 His Pro Tyr Pro Gly Val Gln Asp Gln Glu Gln Ala Thr Ile Ser Ser
 1890 1895 1900
 Leu Ile Asp Ile Leu Val Ala Leu Ser Ile Leu Met Gly Tyr Ser Val
 1905 1910 1915 1920
 Thr Thr Ala Ser Phe Val Thr Tyr Val Val Arg Glu His Gln Thr Lys
 1925 1930 1935
 Ala Lys Gln Leu Gln His Ile Ser Gly Ile Gly Val Thr Cys Tyr Trp
 1940 1945 1950
 Val Thr Asn Phe Ile Tyr Asp Met Val Phe Tyr Leu Val Pro Val Ala
 1955 1960 1965
 Phe Ser Ile Gly Ile Ile Ala Ile Phe Lys Leu Pro Ala Phe Tyr Ser
 1970 1975 1980
 Glu Asn Asn Leu Gly Ala Val Ser Leu Leu Leu Leu Leu Phe Gly His
 1985 1990 1995 2000
 Ala Thr Phe Ser Trp Met Tyr Leu Leu Ala Gly Leu Phe His Glu Thr
 2005 2010 2015
 Gly Met Ala Phe Ile Thr Tyr Val Cys Val Asn Leu Phe Phe Gly Ile
 2020 2025 2030
 Asn Ser Ile Val Ser Leu Ser Val Val Tyr Phe Leu Ser Lys Glu Lys
 2035 2040 2045
 Pro Asn Asp Pro Thr Leu Glu Leu Ile Ser Glu Thr Leu Lys Arg Ile
 2050 2055 2060
 Phe Leu Ile Phe Pro Gln Phe Cys Phe Gly Tyr Gly Leu Ile Glu Leu
 2065 2070 2075 2080
 Ser Gln Gln Gln Ser Val Leu Asp Phe Leu Lys Ala Tyr Gly Val Glu
 2085 2090 2095
 Tyr Pro Asn Glu Thr Phe Glu Met Asn Lys Leu Gly Ala Met Phe Val
 2100 2105 2110
 Ala Leu Val Ser Gln Gly Thr Met Phe Phe Ser Leu Arg Leu Leu Ile
 2115 2120 2125
 Asn Glu Ser Leu Ile Lys Lys Leu Arg Leu Phe Phe Arg Lys Phe Asn
 2130 2135 2140
 Ser Ser His Val Arg Glu Thr Ile Asp Glu Asp Glu Asp Val Arg Ala
 2145 2150 2155 2160

Glu	Arg	Leu	Arg	Val	Glu	Ser	Gly	Ala	Ala	Glu	Phe	Asp	Leu	Val	Gln	
				2165					2170						2175	
Leu	Tyr	Cys	Leu	Thr	Lys	Thr	Tyr	Gln	Leu	Ile	His	Lys	Lys	Ile	Ile	
		2180						2185					2190			
Ala	Val	Asn	Asn	Ile	Ser	Ile	Gly	Ile	Pro	Ala	Gly	Glu	Cys	Phe	Gly	
		2195					2200					2205				
Leu	Leu	Gly	Val	Asn	Gly	Ala	Gly	Lys	Thr	Thr	Ile	Phe	Lys	Met	Leu	
	2210					2215					2220					
Thr	Gly	Asp	Ile	Ile	Pro	Ser	Ser	Gly	Asn	Ile	Leu	Ile	Arg	Asn	Lys	
2225					2230					2235					2240	
Thr	Gly	Ser	Leu	Gly	His	Val	Asp	Ser	His	Ser	Ser	Leu	Val	Gly	Tyr	
			2245						2250					2255		
Cys	Pro	Gln	Glu	Asp	Ala	Leu	Asp	Asp	Leu	Val	Thr	Val	Glu	Glu	His	
		2260						2265					2270			
Leu	Tyr	Phe	Tyr	Ala	Arg	Val	His	Gly	Ile	Pro	Glu	Lys	Asp	Ile	Lys	
	2275						2280					2285				
Glu	Thr	Val	His	Lys	Leu	Leu	Arg	Arg	Leu	His	Leu	Met	Pro	Phe	Lys	
	2290					2295					2300					
Asp	Arg	Ala	Thr	Ser	Met	Cys	Ser	Tyr	Gly	Thr	Lys	Arg	Lys	Leu	Ser	
2305					2310					2315					2320	
Thr	Ala	Leu	Ala	Leu	Ile	Gly	Lys	Pro	Ser	Ile	Leu	Leu	Leu	Asp	Glu	
			2325						2330					2335		
Pro	Ser	Ser	Gly	Met	Asp	Pro	Lys	Ser	Lys	Arg	His	Leu	Trp	Lys	Ile	
		2340						2345					2350			
Ile	Ser	Glu	Glu	Val	Gln	Asn	Lys	Cys	Ser	Val	Ile	Leu	Thr	Ser	His	
	2355						2360					2365				
Ser	Met	Glu	Glu	Cys	Glu	Ala	Leu	Cys	Thr	Arg	Leu	Ala	Ile	Met	Val	
	2370					2375					2380					
Asn	Gly	Lys	Phe	Gln	Cys	Ile	Gly	Ser	Leu	Gln	His	Ile	Lys	Ser	Arg	
2385					2390					2395					2400	
Phe	Gly	Arg	Gly	Phe	Thr	Val	Lys	Val	His	Leu	Lys	Asn	Asn	Lys	Val	
			2405						2410					2415		
Thr	Met	Glu	Thr	Leu	Thr	Lys	Phe	Met	Gln	Leu	His	Phe	Pro	Lys	Thr	
		2420						2425					2430			
Tyr	Leu	Lys	Asp	Gln	His	Leu	Ser	Met	Leu	Glu	Tyr	His	Val	Pro	Val	
		2435					2440					2445				
Thr	Ala	Gly	Gly	Val	Ala	Asn	Ile	Phe	Asp	Leu	Leu	Glu	Thr	Asn	Lys	
	2450					2455						2460				

Thr Ala Leu Asn Ile Thr Asn Phe Leu Val Ser Gln Thr Thr Leu Glu
 2465 2470 2475 2480

Glu Val Phe Ile Asn Phe Ala Lys Asp Gln Lys Ser Tyr Glu Thr Ala
 2485 2490 2495

Asp Thr Ser Ser Gln Gly Ser Thr Ile Ser Val Asp Ser Gln Asp Asp
 2500 2505 2510

Gln Met Glu Ser
 2515

<210> 7
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 7
 gaagagttga ttgagaagtg c

21

<210> 8
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 8
 cgaagagaac tatgtgacag c

21

<210> 9
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 9
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20

<210> 10
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 10
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 <210> 11
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 11
 cagaagggtg agtccgatga ggtaagac 28

 <210> 12
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 12
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 <210> 13
 <211> 24
 <212> DNA
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 <220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 13
 gtaatcttca taggaaccat tgcg 24

 <210> 14
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer

 <400> 14
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<210> 15
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
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 primer

<400> 15
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27

<210> 16
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 16
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19

<210> 17
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 17
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20

<210> 18
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 18
 ggtgttctgg ctgcattc

18

<210> 19
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 19

gcctcatcta catcattgcc

20

<210> 20

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 20

gtgttccaac tctcttatga cgatggc

27

<210> 21

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 21

catgttcttc cgtaccgtgt gtagg

25

<210> 22

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 22

ggcaatgatg tagatgaggc

20

<210> 23

<211> 19

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic primer

<400> 23
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<210> 24
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 <212> DNA
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<220>
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 primer

<400> 24
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<210> 25
 <211> 19
 <212> DNA
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<400> 25
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<210> 26
 <211> 20
 <212> DNA
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 primer

<400> 26
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<210> 27
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
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 primer

<400> 27
 gaaggtttcc ctatcaagg 19

<210> 28
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
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 primer

<400> 28
 gtatcatgta ccagtcacag caggagg

27

<210> 29
 <211> 28
 <212> DNA
 <213> Artificial Sequence

<220>
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 primer

<400> 29
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28

<210> 30
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 30
 gaggggagaa gaaaagtcag

20

<210> 31
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
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 primer

<400> 31
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21

<210> 32
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
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 <400> 32
 ccagagcaa gtgatttc 18

<210> 33
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
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 primer

 <400> 33
 cgagtgcccg taggagtg 18

<210> 34
 <211> 22
 <212> DNA
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<220>
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 primer

 <400> 34
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<210> 35
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

 <400> 35
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<210> 36
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 <212> DNA
 <213> Artificial Sequence

<220>
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 primer

 <400> 36
 caacagttat ccagagattc a 21

<210> 37
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 37
 ggtccctgc caatagaac 19

<210> 38
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 38
 gcaaatgcag tatgtgacac 20

<210> 39
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 39
 cggccgcggc gcgcccggac cgcctaggat ttaaactcgc gcccgcg 47

<210> 40
 <211> 68
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 40
 ctctagaatt cggcctccgt ggccgtttaa acgctagcgc ccgggcttaa ttaagtcgac 60
 tctagagc 68